

# More sustainable food by thinking about 'spreadability'

**Anouk Lie-Piang, who recently received a PhD in the Food Process Engineering group, developed a model for predicting how 'enriched ingredients' influence the structure of food products.**

Most food products consist of multiple ingredients. These ingredients are necessary to give the final product the desired shelf life, flavour or texture. They are usually made from agricultural crops such as wheat and soya beans. During the production process, the crop is split into pure ingredients known as isolates. Examples are wheat flour and soya protein.

Lie-Piang: 'If you buy a bag of isolates, you always get exactly the same standardized product. That makes them an attractive option for the food industry to use in recipes.' The disadvantage of isolates is that lots of resources — such as water, chemicals and energy — are needed to produce these pure isolates.

## Backwards

Lie-Piang studied slightly less pure enriched ingredients, which contain several components. They are more sustainable because they undergo fewer fractioning processes, but they are harder to use for the food industry because the end result is less standardized.

She developed a method whereby product developers can screen enriched ingredients to determine their functionality. 'If you can predict the functionality of such ingredients, and see for example what the resulting 'spreadability' or 'gel structure' will be, you can use them in food products just like isolates,' explains Lie-Piang. Product developers can use the model to work backwards, as it were. 'You have a particular product in mind and based on that, you figure out which ingredients you need and in what concentrations. Less pure ingredients are often just as effective, and you can achieve the same functionality using a different approach. The end product is then almost the same, but the production is more sustainable.' DV